

munication system comprised of a plurality of nodes where each node of the plurality has at least one antenna beam associated therewith and each of the subscriber units has a user class associated therewith. The method comprises identifying a geographic area likely to exhibit overload during a planning interval, calculating a proportion of users in the geographic area desired to be blocked from accessing the communication system and forming a set of inhibited user classes to inhibit in the geographic area based on the proportion. The method further comprises creating a parameter set which includes the set of inhibited user classes, identifying at least one node of the plurality of nodes and an associated antenna beam expected to service the geographic area during the planning interval and sending the parameter set to at least one node. The method further comprises broadcasting by the node in the associated antenna beam on a broadcast channel, the parameter set wherein the subscriber units of the set of inhibited user classes are prevented from accessing the communication system.

Another advantage of the present invention is to provide a method of limiting access to users of a communication system which is accessible through subscriber units that have a user class associated therewith. The method comprises the steps of selecting by a subscriber unit a strongest antenna beam from a plurality of antenna beams, the plurality of antenna beams being associated with at least one node of the communication system, the antenna beams having broadcast channels, traffic channels and acquisition channels associated therewith. The method also includes receiving at the subscriber unit in the broadcast channel associated with the strongest antenna beam, a parameter set which includes inhibited user classes. The method further includes determining by the subscriber unit if the user class associated with the subscriber unit is one of the inhibited user classes received in the parameter set, and informing a user of the subscriber unit, when the user class associated with the subscriber unit is one of the inhibited user classes, that service is not presently available.

In a preferred embodiment, the method comprises the steps of determining if a second antenna beam of the plurality of antenna beams is available when the user class associated with the subscriber unit is one of the inhibited user classes, the determination based on a signal strength of the other antenna beams, and selecting by the subscriber unit, the second antenna beam if the second antenna beam is available. The method further comprises receiving at the subscriber unit in the broadcast channel associated with the second antenna beam, a second parameter set which includes a second list of inhibited user classes, and determining by the subscriber unit if the user class associated with the subscriber unit is one of the inhibited user classes received in the second parameter set.

In another preferred embodiment, the method comprises the steps of initiating an access protocol on the acquisition channel associated with the strongest antenna beam when the user class associated with the subscriber unit is not one of the inhibited user classes received in the parameter set, and receiving on the acquisition channel, an assignment of a traffic channel upon successful completion of the access protocol, the traffic channel associated with the strongest antenna beam.

Another advantage of the present invention is to provide a method of operating a node in a communication system where the node has a plurality of antenna beams associated therewith, each antenna beam of the plurality of antenna beams has a demand for communication services associated therewith, and the antenna beams have broadcast channels,

traffic channels and acquisition channels associated therewith. The method comprises the steps of receiving from the communication system, a parameter set associated with at least one antenna beam of the plurality of antenna beams which includes a list of inhibited user classes for the one antenna beam, and determining if an available number of traffic channels associated with the antenna beam is below a reserve threshold. The method further comprises modifying the parameter set to include a list of regular user classes when the available number of traffic channels in at least one antenna beam is below the reserve threshold, and broadcasting the parameter set in an associated broadcast channel of at least one antenna beam.

Another advantage of the present invention is to provide a communication system having a plurality of nodes. The system comprises an antenna coupled to one node of the plurality where the antenna produces an antenna beam, a multi-channel transceiver coupled to the antenna where the multi-channel transceiver is capable of transmitting and receiving orthogonal channel sets in the antenna beam, and a processor coupled to the multi-channel transceiver. The system further comprises a storage medium coupled to the processor wherein the combination of the processor and the storage medium identify a geographic area likely to exhibit overload during a planning interval, and calculate a proportion of users in the geographic area to be blocked from accessing the communication system. The combination of the processor and the storage medium further form a set of inhibited user classes to inhibit in the geographic area based on the proportion, create a parameter set which includes the set of inhibited user classes, and identify a node of the plurality of nodes and an associated antenna beam expected to service the geographic area during the planning interval. The combination of the processor and the storage medium also send the parameter set to the node, and the multi-channel transceiver broadcasts in the associated antenna beam on a broadcast channel, the parameter set. As a result, subscriber units of the set of inhibited user classes are prevented from initiating access to the communication system.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a highly simplified diagram of a satellite based communication system;

FIG. 2 illustrates an example of an exemplary data packet used to transport communications in a preferred embodiment of the present invention;

FIG. 3 illustrates a simplified layout diagram of a portion of a cellular pattern formed on the surface of the earth by satellites for the communication system of FIG. 1;

FIG. 4 illustrates a simplified block diagram of a satellite radio communication station suitable for use in a preferred embodiment of the present invention;

FIG. 5 illustrates a simplified block diagram of a system control station and an earth terminal suitable for a preferred embodiment of the present invention;

FIG. 6 illustrates a simplified block diagram of a subscriber unit suitable for a preferred embodiment of the present invention;

FIG. 7 shows a flow chart of procedures performed by a subscriber unit suitable for a preferred embodiment of the present invention;

FIG. 8 shows a flow chart of procedures performed by a control station suitable for a preferred embodiment of the present invention; and